DOE Site:	INL, Idaho
EM Project:	Idaho CERCLA Disposal Facility
ETR Report Date:	December 2007

ETR-10

External Technical Review Summary

United States Department of Energy Office of Environmental Management (DOE-EM)

External Technical Review of Idaho CERCLA Disposal Facility (ICDF) At Idaho National Laboratory (INL)

Why DOE-EM Did This Review

The Idaho CERCLA Disposal Facility (ICDF) is a land disposal facility that is used to dispose of LLW and MLW generated from remedial activities at the Idaho National Laboratory (INL). Components of the ICDF include a landfill that is used for disposal of solid waste, an evaporation pond that is used to manage leachate from the landfill and other aqueous wastes (8.3 million L capacity), and a staging and treatment facility. The ICDF is located near the southwest corner of the Idaho Nuclear Technology and Engineering Center with a disposal capacity of ~390,000 m3 (December 2007 at ~45% capacity). *The external review objective was to identify (1) issues with the ICDF design, operations and management that could impact its ability to meet performance objectives, (2) similarities to or lessons learned from Hanford's ERDF that would improve the ICDF, and (3) good practices at ICDF that would benefit other DOE sites.*

What the ETR Team Recommended

- Evaluate methods used to place grout within containers to ensure that the 5% maximum void space criterion is met.
- Evaluate and utilize density methods that are more reliable than nuclear density testing for compaction testing (e.g. ASTM D 4914).
- Re-evaluate the testing strategy for he leachate alarm system to ensure frequency of testing is sufficient.
- Re-evaluate the Landfill Compaction/Subsidence Study to consider the impacts of differential settlement caused by variations in stiffness, collapse of voids, and long-term creep settlement of the wastes in the ICDF.
- Consider filling voids between containers with soil to reduce moisture contact with the waste.

What the ETR Team Found

The independent review team found no issues of immediate concern affecting the performance of the ICDF. As noted in the recommendations, the team was concerned about void space within the waste containers an assurance of meeting the 5% requirement, void space between and under containers, compaction/density determinations of compacted mixtures of soil and debris, and that the current Compaction/Subsidence study does not consider localized differential settlements.

The following noteworthy practices, beneficial to other DOE sites were identified:

- Automated monitoring of leachate collections systems and leak detection zones should be employed at all landfills operated by EM.
- Trucks equipped with mechanical arms should be considered for transporting roll-off boxes to reduce lost time and disability due to accidents associated with cable winches.
- Technologies such as RFID tags should be considered to provide tight control on the waste stream being landfilled.

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July 2009

The purpose of an External Technical Review (ETR) is to reduce technical risk and uncertainty. ETRs provide pertinent information for DOE-EM to assess technical risk associated with projects and develop strategies for reducing the technical risk and to provide technical information needed to support critical project decisions. Technical risk reduction increases the probability of successful implementation of technical scope. In general, ETRs assesses technical bases, technology development, and technical risk identification and handling strategies.